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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,843	08/29/2003	Wu Hung Ko	N1085-00241 TSMC2003-082	2819

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DUANE MORRIS, LLP
IP DEPARTMENT
ONE LIBERTY PLACE
PHILADELPHIA, PA 19103-7396

EXAMINER	
ROSASCO, STEPHEN D	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/652,843	KO ET AL.	
	Examiner	Art Unit	
	Stephen Rosasco	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/29/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

The disclosure is objected to because of the following informalities: Page 5, section [0012] refers to Table I below, but there is no table present.

Appropriate correction is required.

Claims 1, 6, 11, (and claims dependent therefrom) the abstract and in the specification in the "Summary" section, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The statement under section (b) in these claims is unclear as to what the term amount is referring to. If it is styrene then it would be clearer if the claim read –,wherein an amount of styrene effective for the purpose is added to the system.-

Also in section (b) the claims read "repairing said defect", when styrene is added to the system. However, the styrene does not actually repair the mask but is involved as a control in the process in that the claimed invention is directed to a method for fabrication of an integrated circuit, which includes a method for removing etching assist gas from a fabrication system used during defect repair of a photomask, comprising: (a) inspecting the photomask and detecting a defect, said defect in a defect region; and (b) repairing said defect, wherein an amount of styrene is added to the system which is effective for the repair.

The applicant states that FIB deposition used to repair clear defects is more controllable than laser deposition, because the ion beam current profile also has a long tail which extends well beyond the nominal beam diameter, material is deposited in a relatively large area surrounding the intended deposit. This peripheral film is a fraction of the thickness of the intended deposit, but often must be removed to avoid degradation of transmission in surrounding clear regions. Removal of the peripheral film, or "halo" requires an extra step which adds to the complexity and time required for the repair process and introduces another possibility for damaging the quartz or otherwise introducing defects. In addition, because the quartz substrate charges during ion beam processing, the ion beam can be deflected and the repair patch will therefore not be located where expected.

By the method of the claimed invention, etching assist gas is minimized by reaction with e.g., styrene. An etching assist gas such as xenon fluoride is reduced in a system undergoing etch repair, resulting in minimum critical dimension (CD) variation after high frequency (e.g., 50 times) etch repair.

And that in the testing of the present invention, it was found that with a standard bromine purge, the CD variation was 22.4% after scanning 30 times, while with a standard styrene purge, the CD variation was 3.8% after scanning 50 times. Thus, styrene is significantly more effective in preventing damage to the MOS film.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Rosasco
Primary Examiner
Art Unit 1756

S.Rosasco
05/25/05